

What is claimed is:

1. A system for cooling at least one computer component, said system comprising:
a plurality of cold plates adapted to transfer heat from a plurality of computer components to a cooling fluid;
a supply line to supply said cooling fluid to, and from, said cold plates; and
a housing having one or more racks configured to support said plurality of computer components, said one or more racks further configured to support said plurality of cold plates in thermal communication with said plurality of computer components.
2. The system of claim 1, further comprising:
a heat exchanger adapted to transfer heat from a cooling fluid to a medium.
3. The system of claim 1, further comprising:
a heat exchanger adapted to transfer heat from the cooling fluid to another fluid.
4. The system of claim 1, further comprising:
an electronic controller.
5. The system of claim 4, wherein said electronic controller is configured to modulate the cooling of at least one of said computer components.
6. The system of claim 1, further comprising:
a controllable valve to modulate the supply of water from a chilled water supply; and
means for connecting a chilled water supply to a heat exchanger.
7. The system of claim 6, wherein said controllable valve is adapted to modulate a supply of liquid from a chilled liquid supply in response to instructions from an electronic controller.
8. The system of claim 1, further comprising:
at least one controllable valve to modulate the flow of said cooling fluid through the supply line.

9. The system of claim 1, further comprising:
a fluid reservoir attached to said supply line; and
one or more pumps operable to circulate the fluid.

5 10. The system of claim 1, further comprising:
a self-contained unit in the form of a single chassis.

11. The system of claim 1, further comprising:
a sensor to measure the power consumption of a computer component.

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12. A system for cooling at least one computer component, said system comprising:
means for holding a plurality of computer boards;
electronic connection means for providing electrical power to the computer boards;
communication connection means for providing communication between the computer
15 boards and an apparatus external to the system;
a plurality of cold plates, each cold plate being adapted to serve as a heat exchanger for
one or more components on one or more of said computer boards;
means for holding one or more of the cold plates in thermal communication with one or
more of said computer boards;
20 means for passing a fluid through each of the one or more cold plates so the one or more
cold plates transfer heat energy from the one or more computer boards to the fluid; and
means for transferring heat away from the fluid.

13. The system for cooling at least one computer component of claim 12, wherein said
25 means for passing a fluid through each of the one or more cold plates comprises:
a supply line to supply said fluid between said one or more cold plates and said means
for transferring heat away from the fluid; and
one or more pumps to circulate the fluid through at least one of:
said one or more cold plates;
30 said means for transferring heat away from the fluid; and
said supply line.

14. The system for cooling at least one computer component of claim 12, wherein said means for transferring heat away from the fluid comprises:
a second heat exchanger adapted to draw heat from the fluid and transfer it to a medium.

15. The system for cooling at least one computer component of claim 12, further comprising:
an electronic controller configured to modulate the operation of the system.

16. The system for cooling at least one computer component of claim 12, wherein said means for holding a plurality of computer boards comprises a housing, said housing being adapted to removably receive a plurality of computer boards.

17. The system for cooling at least one computer component of claim 12, wherein said means for holding one or more of the cold plates in thermal communication with one or more of said computer boards comprises mounting hardware configured to hold one or more of said cold plates in substantial contact against one or more computer boards.

18. The system for cooling at least one computer component of claim 12, further comprising:
means to monitor the power consumption of a computer component.

19. The system for cooling at least one computer component of claim 18, wherein said means to monitor the power consumption of a computer component is such that the power consumption of each computer board may be measured.

20. A method for cooling at least one computer component in a system for cooling comprising at least one cold plate adapted to transfer heat from at least one computer component to a fluid, and a supply line to supply a fluid to, and from, a heat exchanger, said method comprising the steps of:

providing a housing to receive removable computer components;

providing at least one cold plate within the housing to absorb heat from at least one computer component, wherein said cold plate is configured to allow fluid to pass through the cold plate;

circulating a fluid within the housing and through the cold plate and then away from the

cold plate such that heat is absorbed from the cold plate into the fluid.

21. The method of claim 20, further comprising the steps of:
circulating the fluid through a heat exchanger such that the heat exchanger operates to
5 absorb heat from the fluid and transfer the heat into a medium.

22. The method of claim 20, further comprising the step of:
using one or more valves to modulate the fluid circulation within the system.

23. The method of claim 20 further comprising the step of:
monitoring the temperature within the system.

24. The method of claim 20, further comprising the step of:
monitoring the power consumption of one or more computer boards.

25. The method of claim 20, further comprising the step of:
modulating the circulation of the fluid through the system, in response to a monitoring
step.

26. The method of claim 21, further comprising the step of:
modulating the operation of the heat exchanger, in response to a monitoring step.

27. The method of claim 20, further comprising the step of:
detecting the number of the one or more computer components operating within the
25 system;

monitoring the operation of the one or more computer components operating within the
system;

modulating the cooling of the system in response to the step of detecting the number of
the one or more computer components operating within the system; and

30 modulating the cooling of the system in response to the step of monitoring the operation
of the one or more computer components operating within the system.